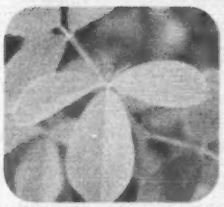

CROP TALK

Volume 14, Issue 4 OMAFRA Field Crop Specialists — Your Crop Info Source November, 2014

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P and K Considerations In Corn

Greg Stewart, Corn Specialist, OMAFRA and K. Janovicek, University of Guelph

With the recent decline of corn prices, there is renewed interest in maximizing return on your fertilizer dollar. Recent phosphorus (P) and potassium (K) research for corn conducted by OMAFRA and the University of Guelph reveal some strategies.

Phosphorus - Band vs. Broadcast

Band applying phosphorus is more likely to result in profitable corn yield increases when compared to the same amount broadcasted.

A review of Ontario research trials indicated that applying 50-70 kg/ha (45-62 lbs/acre) P_2O_5 in a 5 cm X 5 cm (2 in. X 2 in.) band had average yield increases that were 3 times higher when compared to broadcast applied P (Table 1). In fact, only banded P when applied at rates between 50 and 70 kg/ha P_2O_5 resulted in yield increases that on average were profitable. When profit margins are tight growers should make every effort to band P close to the row rather than broadcast. In some cases, low soil test P (i.e. less than 8 ppm) may make broadcasting P necessary.

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Table 1. Average grain corn yield and profit response to broadcast and 2X2 band applied P from Ontario research trials. The average P_2O_5 application rate was 60 kg/ha (54 lb/ac) P_2O_5 with a range between 50 to 70 kg/ha (55-62 lbs/ac) P_2O_5.

Application Method	Yield Increase	Return Increase	Yield Increase	Profit Increase
	tonne/ha	$/ha	bu/ac	$/ac
Broadcast	0.22	- 47	3.5	-19
Banded	0.61	22	9.7	9

Note: Return calculations are based on corn price of $177/ha ($4.50/bu) and MAP (mono-ammonium phosphate) cost of $1.43/kg ($0.65/lb) P_2O_5.

Potassium - Band vs. Broadcast

Including K in starter fertilizers can result in profitable corn grain yield increases, especially when soil test K levels are less than 90 ppm.

Table 2 contains data from Ontario research trials that evaluated corn grain yield response to various starter fertilizers. When soil-test K levels were less than 90 ppm and no broadcast K was applied, applying a MAP/potash blend in a 5 cm x 5cm (2 in. x 2 in.) starter band increased corn yields significantly. In these same circumstances, seed placed liquid fertilizers that also contain a small amount of K can be expected to produce higher corn yields than where no starter fertilizer is used or where starter fertilizers contain P only. On these lower testing soils, when K is broadcast prior to planting (fall or spring) yields are improved significantly by the broadcast K and the magnitude of the yield response due to the starters is reduced (Refer to Table 2).

The data generally indicates that broadcasting K on the lower testing soils is advised, but in situations where land tenure is in question and broadcasting a significant amount of K to build soil tests is risky, a grower who has the capability to band dry fertilizer P and K blends can generate yields equivalent to other options.

On higher testing soils, the size of the yield responses to any applied K is much less. However, some of the same trends are observed. Some K in a starter band can improve yields, but generally the advantage to higher K rates in dry 5 cm X 5 cm (2 in. X 2 in.) bands compared to lower in-furrow rates is marginal.

If broadcast K is to be applied either in the fall or spring prior to corn planting the need for K in the starter is significantly reduced unless soils tests are low (i.e. less than 61 ppm). In these low testing situations, broadcasting to build soil test and banding to help meet the immediate crop requirements are likely both profitable.

Table 2. Impact of broadcast K applications and various starter fertilizer options on corn

Soil Test K (ppm)	Starter Fertilizer	No Broadcast K		Broadcast K	
		Bu/ac	Tonnes/ ha	Bu/ac	Tonnes/ ha
< 90	none	120	7.6	156	9.8
	6-24-6 (liquid in furrow)	139	8.7	158	9.9
	P and K (dry in 2x2 band)	168	10.4	166	10.5
> 90	none	176	11.0	186	11.7
	6-24-6 (liquid in furrow)	186	11.7	192	12.0
	P and K (dry in 2x2 band)	190	10.9	195	12.2

6-24-6 applied at 47 litres/ha (5 gal/acre);
P and K applied at rates of 35-62 kg/ha (31-55 lbs/ac) of P_2O_5 and K_2O each in a blend.
Soil test averages for sites in the < 90 group averaged 71 PPM K and 21 PPM P
Soil test averages for sites in the > 90 group averaged 122 PPM K and 27 PPM P

Winterkill From Manure Application

Christine Brown, Nutrient Management Lead—Field Crops, OMAFRA

Manure applied to wheat crops or to forage crops can be an excellent option, but not in winter on frozen soils.

Manure application in winter should not ever be part of a manure management plan. Rather, it should be part of a contingency plan, because we all know that weather happens. Frequent rain and a late corn harvest is taxing manure storage capacities on many farms in 2014. Contingency plans are essential for manure that must be applied in less than ideal conditions. A forage or wheat field can be an ideal site for contingency plan manure application, because compaction should not be an issue, and the soil cover would help prevent nutrient runoff and erosion. Forage or wheat fields are ideal for those reasons. However, winter kill becomes a much greater risk, especially with application of liquid manure. Why? Beside the common risks that include, compaction from wheel traffic, and crown damage; manure contains salts!

Salt Damage

Salinization, the concentration of salt in the root zone, is not an issue in Ontario. Ample precipitation and drainage leaches the salts through the soil profile. However, when the soil is frozen, infiltration can't occur. Salts in manure can then turn deadly. High sodium also has a negative effect on soil structure; making the soil more susceptible to crusting, and further decreasing the capacity for infiltration.

Livestock manure contains many salts, including ammonium, calcium, magnesium, potassium and sodium. When accrued, they can be significant. Salt content varies from farm to farm based on livestock species, diet formulation and even the salt in the drinking water. Many manure analyses report "Total Salts" or electrical conductivity (EC) to reflect the accumulated salts. A typical hog manure (as applied basis) can have about 20 mS/cm (milliSemens/cm) or about 125 lbs of total salts per 1,000 gallons. Dairy manure average is 14 mS/cm or about 90 lbs/1000 gallons. Sodium and magnesium chloride have a working temperatures to about -15° C; potassium chloride to -4° C, while calcium chloride can work to about -23° C.

When manure is applied on frozen or snow-covered soils, the salts melt the snow and ice at the soil surface. The layer below may still be frozen, preventing infiltration. The melted, saturated layer is high in salts, toxic to roots, and more prone to erosion and runoff, and more susceptible to frost heaving. All these risks are increased where manure with high EC or total salt contents has been applied.

Contingency Plan Options

When contingency plan applications become necessary during the winter season, options include:

- Late summer application to forage crops after the final cut or at the beginning of the critical harvest period,
- Temporary storage at a neighbouring storage that has extra capacity,
- Application to forage fields or cover crops that will be tilled or killed,
- Application to the most level harvested fields, preferably with residue still present, furthest away from surface water, where application does not occur through water runs or "flow paths".

Sampling manure at the time of application should be standard practice. A manure analysis that includes total salts will help to determine the level of risk if contingency application in winter is a last resort.

Figure 1 – Winter kill from manure application on frozen soils during the winter of 2013 was evident when compared to forage growth in areas where no manure was applied.

Sustainability In Your Future?

Ian McDonald, Applied Research Co-ordinator, OMAFRA

What a fall! The only thing good about it is that if we can get past stewing about the weather, it gives us time to think. Sustainability - we hear the word everywhere but what does it mean to you?

When we look to the future, things appear to be very good with lots of opportunities for agriculture. We can look at the yield projections for new genetics in our crops, and the increasing global demand for products of agriculture as food, feed and industrial feedstocks. Although the public doesn't understand farming, they are coming to realize how valuable we are. Technology will make work easier, more accurate and more effective. Wow, I can't wait!

However, we need to come back to sustainability. Sustainability in most people's minds has 3 major pillars - economic, environmental and social. These 3 pillars are dynamic. Although we tend to pay the most attention to economic sustainability, it will become more apparent in the future the need to manage the 3 pillars together.

Soil Health

One measure of agricultural sustainability is the elusive idea of soil health. What is it? Do I have it? How do I get it? Poor soil health leads to reduced productivity through erosion (loss in nutrients and soil), reduction in organic matter which reduces nutrient and water holding capacity, compaction, poor soil structure making it hard to get good seeding conditions and many other detrimental effects. In many cases we know what to do, but we just can't get

ourselves there. A good analogy is human health. I don't think there is one of us that doesn't know we would be healthier if we exercised more and ate a healthier diet, but how many of us are doing it?

We know that complex crop rotations, the right amount of tillage, cover crops, ground cover, proper fertility and the right amounts of water are critical to getting the most out of our crops. But how many of us are practicing what we know? In recent years we have seen an increase in primary tillage, such as plowing and discing. We often don't see fields left with a minimum of 30% crop residue to minimize top soil losses from wind and water erosion. More land and fence rows being cleared of trees. Crop rotations have become tighter with more corn and soybeans and less hay and wheat. Continuing with the health analogy – we need to remake our farm diet and exercise program to be truly sustainable.

Water

Genetics has taken production a long way, but at some point the soil resource is not going to be able to allow the genetic potential to express itself. In a conversation with Dr. Jerry Hatfield of USDA-NRCS Soil Tilth Lab in Ames Iowa last December, we discussed what the constraints are to achieving yield potential of current and future genetics. Jerry estimates that to achieve a sustainable 300 bu/ac level of production in the US corn belt, they are going to have to capture 5-8 more inch acres of rainfall, or retain this much in the system. Water is still the critical piece in crop production that we continue to take for granted. Big yields mean big needs for water, and at the right time. Despite the advances made in genetics, the scientific equation of 6 CO_2 (carbon dioxide) + 6 H_20 (water) molecules = 1 CHO (carbohydrate) molecule is unchanged. Plants may have enhanced abilities to explore soil for more water through more robust root systems, or effectively shut down under low water conditions, or pollinate over a longer period of time, but they have not changed this fundamental equation.

Dr. Hatfield also suggested that climate impact research suggests the future may be a series of wet springs, dry summers, and wet falls. Think about what the implications of that. Crops going into the ground under poor conditions and establishing poor shallow root systems will be followed by dry summers where these compromised root systems will struggle to access limited water. Wet falls will make harvest difficult , with further compaction and soil damage impacting next seasons crop.

SoilSmart 2015

What do we need to do to enhance our soil health to be resilient to climate change and optimize the yield potential of newly available genetics? If you want to have a better handle on this, I invite you to attend SoilSmart 2015. The FarmSmart Ag Conference is again offering a full day, in-depth workshop lead by Ray Archuleta of USDA-NRCS ,Greensboro NC. Ray, better known internationally as "The Soil Guy", is one of the most passionate people I have ever experienced. Ray will spend an entire day with us, along with US and Ontario farmers who have been profitably putting soil health strategies into action. Through lecture, demonstration, workshops, farmer panels and open Q&A sessions, we are going to get to the heart of what it takes to understand soil and soil health enhancing practices. We will be returning to the Manulife Sportsplex at RIM Park in Waterloo at 2100 University Ave. E. on Friday January 23rd, 2015. Keep up with the developing program at www.farmsmartconference.com .

There will be lots on soil health at the major conference events across the province, including the Southwest Ag Conference, FarmSmart, Grey-Bruce Farmers Week, Eastern Ontario Crops Conference, and the Innovative Farmers Conference. See you there!

Does Forage Variety Testing Have A Future?

Joel Bagg, Forage Specialist, OMAFRA

Many of you are familiar with the forage variety performance brochure published annually by the Ontario Forage Crops Committee (OFCC). (www.goforages.ca) Due to recent changes to the Seeds Act, new support from producer organizations and seed companies will be needed for this third-party variety information to be available in the immediate future.

Farmers want top yielding varieties, but they also want assurance that registered perennial forage varieties are adapted to Ontario conditions and have adequate persistence. The forage variety brochure was developed each year since 1955 based on data from independent variety trials at various Ontario locations, including Elora, Kemptville, New Liskeard and Thunder Bay. As of this year, this type of official registration trial data and recommendations for forage variety registration is no longer required by the Canadian Food Inspection Agency.

The OFCC has proposed to continue performance testing of alfalfa varieties in the spring of 2015 on a voluntary, fee-for-service basis. Head-to-head data for individual sites will be publically available. Similar forage variety performance tests were offered to the industry in 2013 and 2014, but insufficient entries were received to seed the trials. In order for this proposal to succeed, sufficient varieties for head-to-head tests will need to be entered by the cooperating seed companies. In addition to entry fees paid by the companies, some funding will be required from farm organizations to help cover expenses. Seed companies respond to the needs of their customers. If there is insufficient interest by their farmer customers, seed companies are unlikely to participate.

For more information or suggestions on how to make this proposal succeed, contact me (joel.bagg@ontario.ca) or Jim Johnston, OFCC Chair (wcook@ntl.sympatico.ca).

New "Cashcropper" App for Crop Rotations

Mike Cowbrough, Weed Specialist, OMAFRA

Crop prices are certainly more bearish now than they have been over the past two seasons. Some farmers question whether they should tweak their cropping rotation in the short term or stay the course. Now there is a smartphone app, called "cashcropper" that will help you to evaluate:

1. The monetary value that different crop rotations bring to your operation.
2. How much phosphorus and potassium is being removed from the soil by each crop in a rotation
3. How much nitrogen is required to reach anticipated grain yield in each crop.

The Cashcropper app (www.cashcropper.ca) allows Ontario grain growers to compare the net profitability and fertility requirements for different crop rotations within a given field. This app is powered by over 30 years of rotational yield response data from the University of Guelph. It takes into account the user's location, soil type and tillage practices for corn, soybeans and wheat. The real costs of "yield driven" nutrient removal for each crop is included in the calculation. The app is pre-loaded with default OMAFRA yield values by county and township as well as input costs. Users can input their own data to assess real and hypothetical rotation decisions.

This app was made possible with the help and expertise of Dr. Bill Deen and Ken Janovicek from the Department of Plant Agriculture, University of Guelph, and the financial support of the Agri-Food and Rural Link (an OMAFRA and University of Guelph partnership) and the Grain Farmers of Ontario.

Download the app at: www.cashcropper.ca

Figure 1 – User can create different crop rotations for a field that they farm.

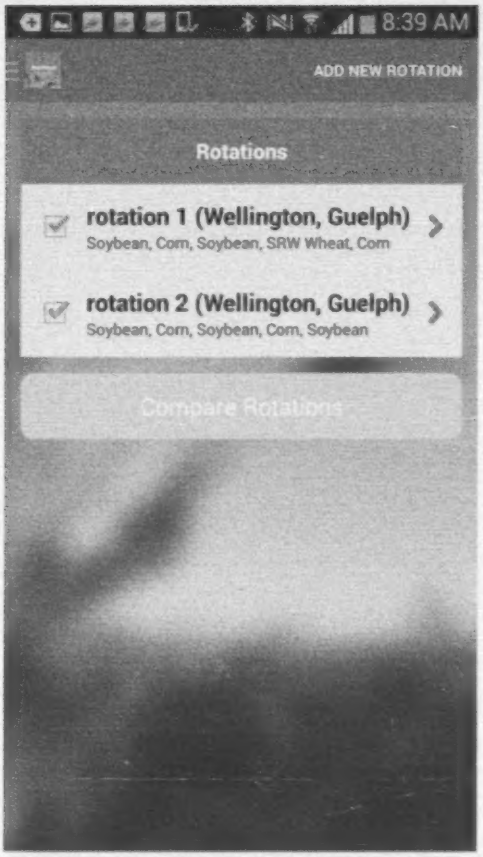


Figure 2- The user can select different crop rotations and compare their profitability.

Figure 2a – User can change default crop yields, prices and production costs to better reflect their operation.

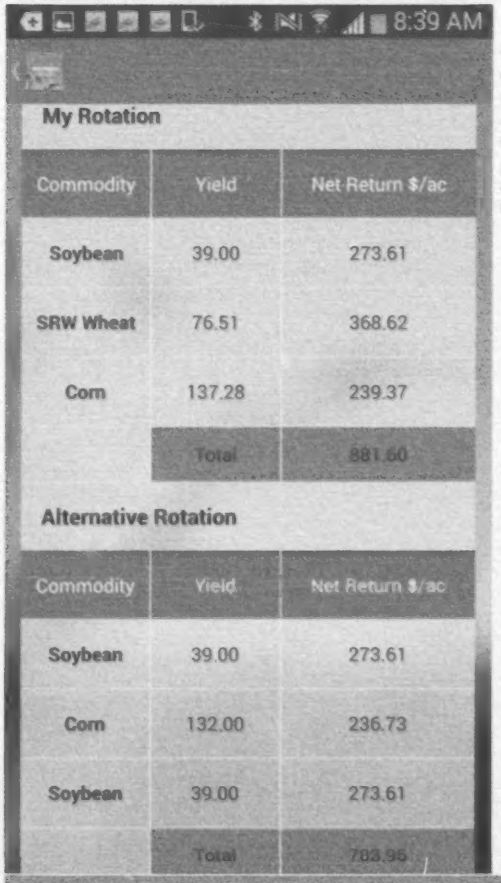


Figure 3 – Yield estimates and net profitability for each rotation are calculated using the information provided by the user and the long term crop rotation date.

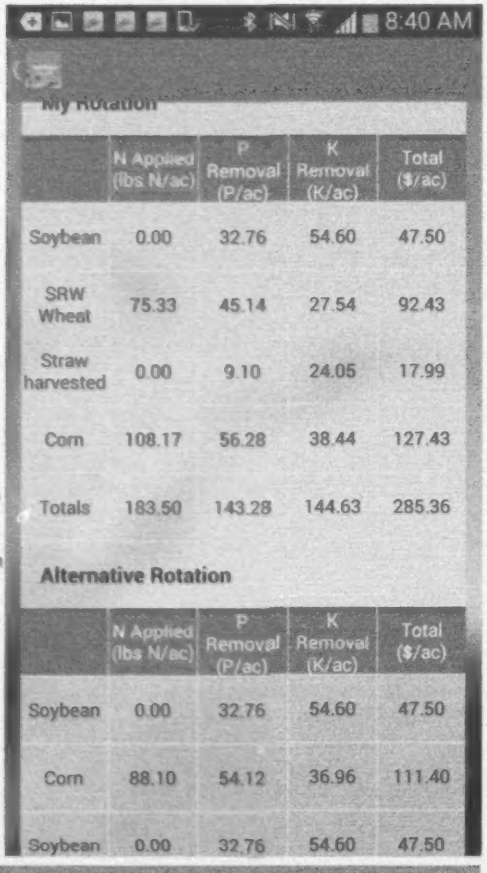


Figure 4– Cashcropper also presents the nutrient removal and requirements for each crop in the rotation so that you can compare removal between two different crop rotations.

Cover Crops Update and Fall Management

Adam Hayes, Soil Management Specialist—Field Crops, OMAFRA

Observations from this Season

Cover crops were tried in many different situations this year. Cover crops were interseeded into corn, flown into soybeans, planted after corn silage and following winter wheat and other crops. In most situations there was plenty of moisture for germination. In some cases excess moisture slowed growth and reduced the amount of nitrogen available for the cover crop. The cooler weather reduced the amount of growth compared to the previous couple of years.

The early frost in mid-September caused injury to sensitive cover crops. A warm season legume called Sunn Hemp (included in a 6 species mix in the St Clair Region Soil and Crop Cover Crop project) was killed by that frost. It was also tried in some areas north of London with limited success. The sorghum-sudan in the mixture was also killed or set back in many of the plots.

Interseeding In Corn

Annual ryegrass, crimson and red clovers, and alfalfa established well when interseeded into corn at the 5 to 6 leaf stage. Later plantings did not establish or had poor stands. Corn herbicides can affect the success of cover crop establishment. The residual herbicides atrazine, isoxaflutole + atrazine and s-metolachlor will cause injury to annual ryegrass interseeded into corn at the 5 to 6 leaf stage.

Fall Management

There are many options for managing cover crops this fall. The best option will depend on the type of cover crop, tillage system and crop to be planted next year. One of the main purposes of cover crops is to keep the soil covered so the cover crop should ideally be left as long as possible, preferably until the spring.

Many cover crops will be killed by the cold. Radish, oats, corn, soybeans, sorghum-sudan, peas and others are sensitive to a killing frost. It will take a temperature of minus 5°C to kill radish. Other cover crops such as the winter cereals, annual ryegrass and the clovers will survive the winter. If there is concern about killing these crops in the spring, then control them as late as possible in the fall. Strip tillage is an option for preparing a seedbed for the following crop. This would usually be done in the fall. If tillage is used in the fall, try to keep it to a minimum because:

1. you want to leave enough residue to protect the soil over winter, and
2. excessive tillage will wipe out any soil benefits.

Many farmers have successfully no-tilled corn into undisturbed cover crop residue.

The Red Clover Advantage

If cover crops are being considered for 2015 and winter wheat is in the ground, don't forget about red clover. It is still the cover crop of choice and has these advantages:

- low cost,
- planted when there are few demands on time,
- easy to seed,
- can be covered by crop insurance,
- provides a 80kg/ha nitrogen credit to the following corn crop, and
- produces more root and shoot biomass than most cover crops planted after wheat harvest.

Patches that don't establish can be filled in with crimson clover. If the red clover stand is poor overall, there is still the opportunity to plant a cover crop after the wheat is taken off.

While the opportunity to plant a cover crop may not come as early as desired – the key is to get them planted. Research from Dr. Laura Van Eerd, University of Guelph, Ridgetown Campus suggests that the root growth and overall presence of a cover crop is the critical thing.

The key cover crop message is to plant early and plant often!

Producing Quality Beef Calves With Quality Pasture

Jack Kyle, Grazing Specialist, OMAFRA

2014 has seen the highest prices for calves and feedlot cattle in history, and is one of the most positive years for cow-calf producers in a lifetime. These prices represent an opportunity to make management decisions that will add to your livestock productivity. Buyers are looking for healthy, growthy cattle that will start gaining as soon as they arrive in their new home. There are four key areas of opportunity to produce healthier, growthier calves that buyers will be enthusiastic about purchasing, with the production of quality forage as the cornerstone.

Vaccination, Growth Promotants & Genetics

Vaccinated cows and calves have more resistance to set-backs. Consult with your veterinarian on the best program for your herd **AND** follow the full program. Using one of the growth promotant products on your calves will result in increased growth and more pounds of calf to sell Consider the use of a growth promotant if it suits your desired market. The herd sire provides half the genetics of your calf crop. Use bulls that produce calves with moderate birth weights but excellent growth and development.

Forage Quality

The most important step you can take is to upgrade the quality of forage fed to your cows and calves. Without quality pasture, you will not achieve the benefits of the previously mentioned good health protocols and good genetics. Pasture is the least costly feed source for cattle. It should be the predominate feed source for a minimum of 200 days a year.

A managed grazing system that provides fresh nutritious forage on a daily basis will encourage high milk production from your cows and optimum development of your calves.

- **Rotationally Graze**
  Forage plants need adequate rest and recovery after being bitten off/harvested. Break your pasture into compartments or paddocks and move the cows and calves to a fresh paddock every 1-3 days. Then allow that paddock to rest and regrow for 30-45 days or more, depending on growing conditions. Legumes should be starting to flower when you return for the next grazing.
- **Add Legumes**
  Include significant legume content in your pasture. Clovers, trefoil and alfalfa each have their advantages. The legumes provide nitrogen for the grass plants as well as providing protein and quality forage for the livestock. The legumes generally have better summer growth than the cool -season grasses. An ideal pasture would have an equal mix of legumes and grasses. Frost-seed clovers or trefoil this coming March on pastures that are low in legume content. If possible graze those pastures short this fall /winter to reduce the competition from existing grasses to the seedling legumes that were frost-seeded.
- **Improve Soil Fertility**
  Pastures that are low in fertility will not produce adequate forage. Take soil samples if you have not done this recently. The soil analysis will give you an indication of required additional fertility. A $20 soil test will let you make the right decision as to quantity and analysis of fertilizer to apply. Phosphorous and potassium are critical for plant growth and development. Nitrogen will encourage grass growth especially grass pastures. A rotational grazing system with animals moving to fresh pastures every few days will provide even distribution of manure and urine across the pasture, and more even pasture growth.

Do You Need to Use Insecticide-Treated Corn and Soybean Seed?

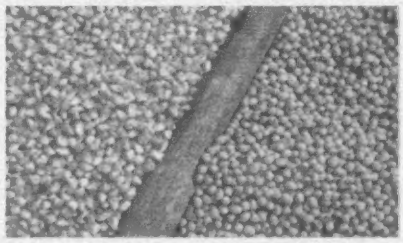
Tracey Baute, Field Crop Entomologist-Program Lead, OMAFRA

Many Ontario Fields Don't Need Neonicotinoid Treated Seeds

Assess Your Risk for Early Season Insect Damage

- Fill out the Pest Evaluation Checklist for Corn or Soybean for your farm at ontario.ca/bx1n
- Use this Pest Evaluation Checklist to target the use of insecticide seed treatments on corn and soybean seed for - fields with identi-fied risks.
- Use the Guide to Early Season Field Crop Pests for more information on pest identi-fication, scouting techniques and integrated pest management strategies at www.gfo.ca/pestguide
- Find out what corn hybrids are available with fungicide-only seed treatment for the 2015 Ontario Season at ontario.ca/bx1n

Find out if non neonicotinoid treated seeds are an option for you by visiting: ontario.ca/bx1n



Identifying Corn Moulds

Albert Tenuta, Field Crop Pathologist, OMAFRA

Gibberella Ear Rot

This is the most common and important ear mould in Ontario. Infection often begins at the ear tip and moves down towards the ear base. In severe cases, the ear husk and cob fuse resulting in mummified ears. Although the fungus can produce a white-coloured mould which makes it difficult to tell apart from *Fusarium* Ear Rot, *Gibberella* produces a characteristic dark-red or pink coloured mould. Toxins produced by *Gibberella* include Deoxynivalenol (vomitoxin or DON), Zearalenone (ZEN) and T-2 toxin. If grain is to be used for feed, a mycotoxin test is recommended. (Figures 1 & 2)

Fusarium Ear and Kernal Rot

Unlike *Gibberella, Fusarium* infected kernels are often scattered around the cob or on kernels that have been damaged, for example by insects or bird feeding. *Fusarium* infection produces a white to pink or salmon-coloured mould. In most cases *Fusarium* does not fuse the husk to the ear. A "white streaking" or "star-bursting" can be seen on the infected kernel surface. Although many *Fusarium* species may be responsible for these symptoms, the primary species we are concerned about in Ontario is *Fusarium verticillioides,* which produces the toxin Fumonisin which is a human carcinogen. (Figure 3)

Diplodia Ear Rot

The characteristic ear symptom of *Stenocarpella maydis* infection is a white mould that begins at the base of the ear and may eventually cover the entire ear. Mould growth can also occur on the outer husk, which has small black bumps (pycnidia) embedded in the mould. These reproductive structures are where new spores are produced. Unlike *Gibberella* and *Fusarium, Diplodia* does not produce any significant toxins. (Figure 4)

Penicillium Ear Rot
Infection produces a light blue-green powdery mould which often grows on or between the kernel surface. However, it can led to internal discolouration of the embryo (Blue-eye mould). Infected kernels could become bleached or streaked. It can be a serious problem if corn is stored at high moisture levels (greater 18%). Ochratoxins are produced by many Penicillium species. (Figure 5)

Alternaria and Cladosporium
These produce a black mould on the ear and kernel surface. They are a problem when harvest conditions are delayed, injury from insects/birds occurs, or when premature crop death from frost occurs. Cladopsorium and Alternaria do not produce any known toxins. If properly stored or ensiled, mould growth stops under anaerobic (oxygen-free) conditions.

Small to almost non-detectable levels of mould in the field can lead to significant mould problems if they go undetected and are allowed to develop in storage. Proper ear mould identification is critical. These fungi not only reduce yield but produce mycotoxins impacting feed value, marketability and livestock health!

Figure 1 - Gibberella Ear Mould

Figure 2 - Gibberella Ear Mould

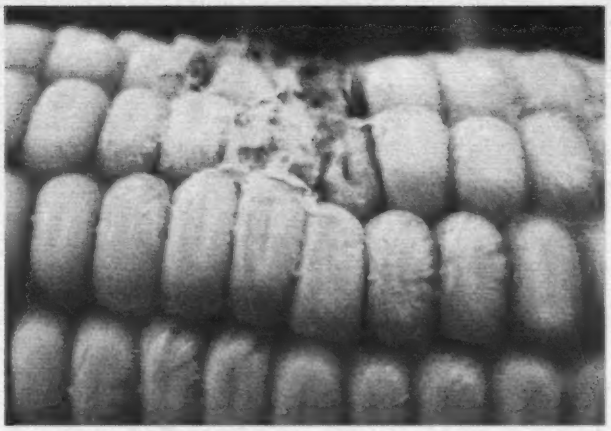


Figure 3 - Fusarium Ear Rot

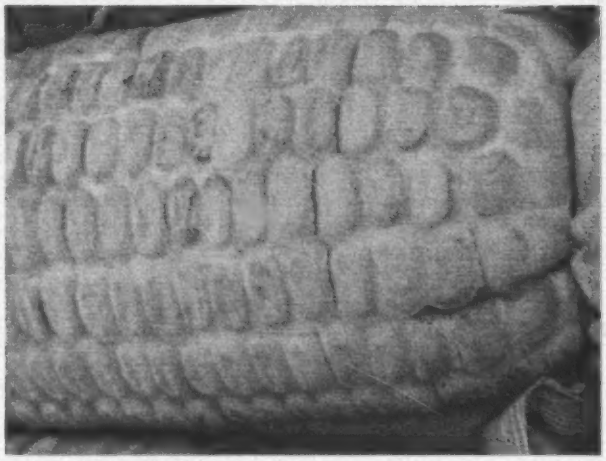


Figure 4—Diplodia Ear Rot

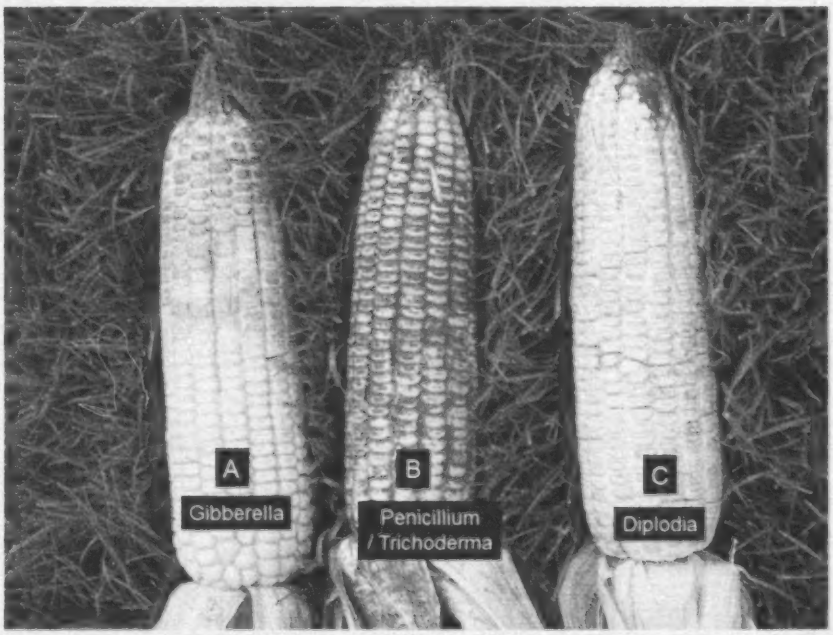


Figure 5 - Gibberella, Penicillium/Trichoderma and Diplodia Ear Rot

Keep Canola In Your Rotation For 2015!

Brian Hall, Canola & Edible Bean Specialist, OMAFRA

In 2014, many growers in shorter season growing areas took advantage of attractive contracting and pricing opportunities for spring cereals and canola. More acres of cereals were seeded, while canola acres were trimmed. Growers who did plant cereals or canola were well rewarded with above average yields. This year's cooler summer temperatures and higher rainfall amounts produced lush stands with excellent grain fill. Quality was generally good, although fusarium in wheat was an issue in some areas. Farmers were also pleased with canola returns due to better than expected yields, with 1 – 1.75 tonne/acre commonly reported. The biggest disappointment has been the long drawn-out harvest of all crops and much lower winter wheat acres being planted this fall. Continued increased acres of spring cereals in 2015 are expected.

Where does canola fit in to the crop mix? The risk of swede midge and inadequate control has resulted in a significant drop in canola acres the past two seasons. This was particularly acute in northern Ontario, where swede midge populations have been very high, and to lesser extent in southern areas. Don't give up on planting some canola. Consider which fields might be best suited to early seeding of canola to escape the risk of serious swede midge damage.

Plant Canola Early!

Early planted canola has a low risk of damage from swede midge because canola is most vulnerable to damage during the vegetative (rosette) stage. Populations of swede midge typically don't begin to emerge until after mid-late May. April planted canola escapes serious damage because plants are in late-rosette to bolting stage when the first peak of overwintering midge emerge. Early planted canola consistently suffers less damage than later planted canola. Depending on your area, it may be best to ***plant canola first.***

Field Location & Rotation

Rotation is the single most effective strategy for controlling Swede midge. Swede midge overwinters in previous canola fields. Don't plant canola near previous year canola fields. Swede midge are not strong fliers, so populations migrate into nearby fields or are carried on wind currents. How far away does a field need to be? European data suggests a minimum 600 – 1,000 feet. Without a host crop, the adult female won't be able to find a place to lay her eggs. Adults only live for a short period of 1-5 days.

In the north, swede midge populations have been high in most canola growing areas so isolation is going to be a challenge. At the Northern Canola Production Centre Field Day this past July, Dr. Rebecca Hallett, University of Guelph, suggested that the best way to significantly reduce swede midge populations was to not grow any canola in this area for the next 3-4 seasons. Swede midge can survive in papal stage for least 2 years in the soil. The rationale is that a 3-4 year rotation without canola in an area would significantly reduce (but not eliminate) populations, allowing at least 1-2 years of canola to be grown without serious risk. Grower practices in the north have been to plant canola after spring cereals, and corn. A best management approach would be to select fields where canola could be planted early, away from neighboring fields where canola was grown last season. This could pose a planting challenge for growers who grow both spring cereals and canola, since there is a significant yield advantage for early seeding of oats and spring wheat.

Monitor for Midge

Even where canola is planted early, fields will still require monitoring for populations of swede midge and applying a foliar insecticide for protection if populations warrant. More information on management recommendations will be available this winter, once data from research and field control trials are summarized.

Of course you can't have big canola yields without following all the basics of seeding, fertility, flea beetles and sclerotinia management. Canola helps to 'risk proof' your crop rotation, spreads workload, provides summer cash flow, utilizes nutrients in manure, and good management options for weeds that otherwise escape. And canola allows for EARLY planted winter wheat! (in most years) and makes money.

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